REMARKS

Claims 1-3, 5, 7, 8, 10-14 and 16-18 are pending in this application. In the outstanding Office Action, claims 1- 3, 10-13 and 18 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over United States Patent Application No. 2002/0107483 ("Biebesheimer") in view of United States Patent Application No. 2002/0156776 ("Davallou"). Claims 5, 7, 8, 14, 16 and 17 stand rejected as unpatentable over Davallou in view of United States Patent No. 6,434,547 ("Mishelevich"). Applicants respectfully traverse.

Claims 1, 10, 11, 14 and 18 have been amended.

Interview Summary

On April 10, 2008, Examiner Brent Stace and Applicants' undersigned representative, Mr. Eiferman, participated in a telephonic interview. During the interview, Mr. Eiferman proposed the claim amendments herein. Examiner Stace agreed to reevaluate the pending rejections in light of the claim amendments and remarks herein.

Claim Rejections Under § 103(a)

Claims 1-3, 10-13 and 18

Claims 1-3 10-13 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Biebesheimer in view of Davallou. Claim 1 relates to a method for improving performance of a search mechanism based upon context-based user feedback data. Claim 1 recites in part monitoring the search mechanism for raw user behavior data regarding an interaction of the user with the search mechanism, and *interpreting said raw user behavior data to generate interpreted user data by concurrently updating a state machine using the raw user behavior data, wherein at least one interpretation corresponds to a state of the state machine* (Emphasis Added).

Support for this amendment can be found in the specification, pages 10-13. Briefly summarizing this discussion, a browser 200 may interact with a browser helper object 210,

which provides information to a behavior tracer 220 including a state machine. The behavior tracer 220 may provide data output to a data acquisition engine 230.

The state machine 225 works to detect the contours of the search session, e.g., when it starts, when it finishes and what occurs during the search session, and may undergo a transition, for example, upon events corresponding to queries for feedback (such as feedback on a specific result or on a query in general) and user queries for state (for example, when a modified search may or may not be part of a new query, the user may be asked whether the user intended to continue the same query or state a new query).

The browser helper object 210 may detect events, which may include user navigation from one page to another, clicking on a hyperlinks, scrolling, closing a window, etc. The events may directly relate to a user's satisfaction with search results such as the user's repeating a query, the time it takes the user to click on an item in a results page, the user's dwell time, etc. Once the raw user behavior data is captured, the information may be passed to a user behavior tracer 220. The events may be used in two ways. First, it may be stored as or used to calculate implicit feedback data (e.g., time spent on page, mouse movements and clicks, etc.).

In addition, the raw user behavior data may be used cause a transition from one state to another or to trigger an event in the state machine. The state machine 225 tracks the possible states of a search, e.g., when the user has finished the evaluation of a particular result, when the user is done with a particular query and when questions need to be asked of users, such as what feedback the user has on a particular result item or in the query as a whole. In particular, similar events, which are detected by the browser helper object 210 may mean different things, depending on what stage of the search session is currently occurring.

Three types of data may be acquired by the data acquisition engine 230 through the user behavior tracer 220. First, context data may be acquired that concerns the query or queries that a user used during a search. Context data may include data such as the states of the search and associated timing, behavior data regarding the user's use of the browser 200 and responses to user queries as to the intent of the user's behavior. Second, implicit user feedback data may be acquired that reflects user behavior throughout a search session, such as page browsing, scrolling, clicking, etc. This implicit user feedback data may be used along with other data to drive transitions between the states of the state machine 225. The

user behavior data is not necessarily the raw user behavior data stream sent by the browser helper object 210. For example, the raw data may be interpreted and stored as four types of implicit feedback data including: (a) user behavior while visiting a result list page, including the time spent at that result; (b) user behavior while exploring a hyperlink on the result list page, such as a search tip link, including the time spent at that result; (c) user behavior for visiting a result item page, including the time spent at that result and other actions such as scrolling, printing or adding the document to the user's favorites; and, (d) result item ignore records.

The interpreted implicit user feedback data may correspond to the states in the state machine 225 and the interpretation of the raw user behavior data into interpreted user behavior data may be accomplished in the states of the state machine as the states are being traversed.

Finally, a third type of data is acquired referred to as explicit user feedback data. The explicit user feedback data is explicit user feedback regarding why a non-selected search result failed to correspond to a search query, which has been requested about the result items the user visited and the query the user submitted. For example, regarding a specific result which the user ignored the user may be asked "Why didn't you try this result?" and provided choices including "I didn't think this would answer my question.

Biebesheimer relates to a customer self-service subsystem for classifying user context, which performs resource search and selection and includes a contexts attribute database comprising types of user contexts and one or more context attributes associated with each user context for processing by the system and a context attribute function database comprising functions for computing values for each context attribute.

The classifying system comprises a computing device for receiving a user query and a context vector comprising data associating an interaction state with the user and processing the query and context vector against data included in the context attribute data base and context attribute function database for predicting a particular user context.

Biebsheimer fails to teach or suggest generating interpreted user behavior data from raw user data. Nor does Biebesheimer disclose the use of a state machine for any purpose. Clearly, since Biebesheimer fails to disclose a state machine at all, Biebesheimer fails to

teach or suggest the claim element of generating interpreted user behavior data by concurrently updating a state machine using raw user behavior data.

Moreover contrary to the Examiner's assertions, neither Biebsheimer alone or in combination with Davallou teaches the claim elements of: (i) identifying at least one non-selected search result that is generated by the search mechanism as part of said search but that is not selected by the user, and (ii) acquiring the context-based user feedback data describing said search by submitting one or more questions to the user regarding the non-selected search result, said questions prompting the user for *explicit reasons why a search result failed to correspond to a search request* (Emphasis Added).

Davallou relates to a phonetic self-improving search engine. After an initial query to a primary database fails to produce a positive result, an error memory database may be queried with a search string to obtain a positive result based on records of previously failed searches which ultimately found a positive result. If no record is found, the search string may be parsed into at least one pronouncable unit. Phonetically equivalent formulas may be applied to the at least one pronouncable unit to create at least one phonetic search string which is re-queried into the error memory database and the primary database.

Davallou does not disclose that non-selected search results are determined and then context-based user feedback is obtained by querying the user with questions eliciting reasons why the non-selected search results failed to correspond to the search request as recited in amended Claim 1.

Davallou does indicate that multiple search results may be returned to a user in an array (Paragraph 23). Inaccurate search results, which do not exist in the primary database, may be provided to an error memory database, upon which if valid data matches exist in the error memory database, the user may choose to accept the result. If the user chooses not to accept the result and the error memory database indicates this is a novel query, the user may elect to conduct a more thorough phonetic search (Paragraph 31).

In addition, Davallou describes a "Vigilant Monitoring System" that monitors what users retype after not receiving any accurate responses to their original query. Based upon what the users retype and the results that they get from that modified entry and how much time they spend on the results or their positive response to a question asking if what they are currently looking at is what they intended to look for based on their original query which led

to no results, new phonetically equivalent formulas may be developed within the system to make it more refined and better equipped to deal with common human errors in the future.

According to Davallou, if no positive search result is found to exist have exhausting all possibilities of phonetic search strings, the Vigilant Monitoring System may be activated for a given period of time. If the next search string entered by the user within the time period ultimately results in a positive search result, it is then determined whether there is a textual correlation between this new inquiry which led to a result and the old one which did not. This textual correlation may be determined by utilizing an accuracy factor or by querying the user to confirm if the next search string which ultimately led to the result is what the user originally intended with the string that led to no results. A copy of the entire transaction is then forwarded to a database administrator for further upgrades to phonetic matching rules. (Paragraph 33).

Querying the user to confirm that a next string which led to results is what the user originally intended with the string that led to no results is not equivalent to querying the user for explicit reasons why a search result failed to correspond to a search request. In the former case there is no indication as to why the unselected search results were deficient. An exemplary query might be "Why didn't you try this result?" It may be use in determining user satisfaction with a search to determine why a user did not select a result. A user may have found the summary of the result presented to be adequate or may have found the result to be inappropriate or not the best result from among the search results. Collecting explicit feedback on non-selected results may therefore be useful in determining user satisfaction. This explicit feedback may then be utilized to correct the problem in a manner not possible with Davallou.

In light of the fact that the cited references fail to teach or suggest the recited limitations, claim 1 should be allowed. Claims 2-3 depend from claim 1 and therefore include all the limitations of claim 1. For at least the reasons stated above with respect to claim 1, claims 2-3 should be allowed.

Claim 10 as amended includes limitations similar to claim 1. Thus, for at least the reasons stated with respect to claim 1, claim 10 should be allowed.

Claim 11 as amended includes limitations similar to claim 1. Thus, for at least the reasons stated with respect to claim 1, claim 11 should be allowed.

Claims 12-13 depend from claim 11 and therefore includes all the limitations of claim 11. For at least the reasons stated with respect to claim 11, claims 12-13 should be allowed.

Claim 18 as amended includes limitations similar to claim 1. Thus, for at least the reasons stated with respect to claim 1, claim 18 should be allowed.

Claims 5, 7, 8, 14, 16 and 17

Claims 5, 7, 8, 14, 16 and 17 stand rejected as unpatentable over Davallou in view of Mishelevich.. Mishelevich fails to teach or suggest the cited claim limitations and otherwise fails to cure the deficiencies of Davallou.

Claim 5 as amended includes limitations similar to claim 1. Thus, for at least the reasons stated with respect to claim 1, claim 5 should be allowed. Claims 7-8 depend from claim 5 and include all the limitations of claim 5. Thus, at least for the reasons stated with respect to claim 5, claims 7-8 should be allowed.

Claim 14 as amended includes limitations similar to claim 5. Thus, for at least the reasons stated with respect to claim 5, claim 14 should be allowed. Claims 16-17 depend from claim 14 and include all the limitations of claim 14. Thus, at least for the reasons stated with respect to claim 14, claims 16-17 should be allowed.

Conclusion

In view of the above amendments and remarks, applicant respectfully submits that the present invention is in condition for allowance. Reconsideration of the application is respectfully requested.

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